

Application No. 09/945,483

Attorney Docket No. PD-200095A

REMARKS

This is in response to the presently pending Office Action that was mailed on April 10, 2006. Claims 1-10 are pending and stand rejected and/or are objected to by the Office Action. Specifically, the Office Action rejected claims 1, 3, 9, and 10 under 35 U.S.C. §102(e) as being anticipated by US Pub. 2002/0172181 to Sayeed ("the Sayeed '181 reference). Claim 4 was rejected under 35 U.S.C. §103(a) as being unpatentable over Sayeed '181 in view of US Pub.2005/0013240 to Gerakoulis. Claims 5 and 7 were rejected under 35 U.S.C. §103 over Sayeed '181 in view of U.S. Patent No. 6,728,202 to Sayeed ("the Sayeed '202 reference"). Claim 8 was rejected under 35 U.S.C. §103(a) as being unpatentable over Sayeed '181 and Sayeed '202 and further in view of Gerakoulis. Claims 3-8 are objected to based upon several informalities. The Office Action indicated that claims 2 and 6 would be allowable to include all the limitations of the base claim and any intervening claims. The Applicants traverse the rejections and objections for the reasons stated below.

At the outset, Applicants acknowledge with appreciation the Examiner's indication that claims 2 and 6 would be allowable if rewritten as indicated above. The Applicants would also like to thank the Examiner the opportunity to move prosecution of the case forward in the interview that occurred on April 4, 2006.

Written Statement Regarding Substance of 4/04/2006 Interview per 37 CFR 1.113(b)

The Applicants extend appreciation for the opportunity to discuss the pending application with Examiner Ly during the telephone interview that occurred on April 4, 2006. Those participating in the interview were in-house counsel for the Applicants, Georgann S. Grunebach and the Examiner. In accordance with the requirements of 37 CFR 1.133(b) and the manual of Patent Examining Procedure (MPEP) §713.04, the Applicants provide the following written statement of the reasons presented at the interview as warranting favorable action.

No exhibits were shown or discussed. The application was discussed and in particular the request made by a previously assigned Examiner to amend the specification and drawings to support the claims. Newly assigned Examiner Ly stated that the Amendments to the specification filed on October 4, 2005 and December 27, 2005 were not required and believed that the pending claims were fully supported by the specification. Accordingly, the Amendments will not be entered by the Examiner.

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Turning now to the objections, the Office Action stated that in claims 3 and 4, the term "system" should be amended to "method." The Applicants have amended the claims as requested by the Office Action. With respect to claim 5, the Office Action stated that recitation of "for transferring" is not a positive limitation, "but only requires the ability to so perform." The Applicants have amended the claim to recite that the links transfer the symbols.

Turning now to the substantive rejections, the Office Action rejected claim 1 based upon the Sayeed '181 reference. Amended claim 1 recites:

1. A method of optimizing utilization of user link bandwidth for a code division multiple access communications system comprising the steps of:
selecting a set of orthogonal complex codes each having a code length that is greater than a code length of an associated optimum real code and less than or equal to an associated spreading code length, the set of orthogonal complex codes being chosen so that utilization of the bandwidth of at least one of a plurality of user links is optimized; and
transferring symbols across the at least one of a plurality of user links to or from at least one of a corresponding plurality of user terminals wherein the symbols are represented by a corresponding one of the set of orthogonal complex codes.

Claim 1 recites an affirmative selection of a complex code having a length that is greater than an associated optimum real code length and less than or equal to an associated spreading code length. And, as also recited in claim 1, the selection of a complex of this length optimizes the utilization of the bandwidth. The selection of a code with an optimum length allows the capacity of the system to be increased when appropriate. To give a specific example, and as mentioned in the Applicants' specification:

The greater code length of the selected set of orthogonal complex codes allows more user terminals 110 to share the same service area, thereby reducing the number of service areas required and the corresponding total cost of support equipment. In cases where the ratio of the spectrum bandwidth to the symbol rate happens to be equal or very close to $2n$, real codes are preferable to complex codes. At other ratios, however, complex codes may be used advantageously to increase the capacity of a code division multiple access communication system.

Specification, page 10, lines 8 to 17.

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In contrast, the Sayeed '181 reference does not teach the selection of associated codes. In fact, the codes mentioned in Sayeed are randomly chosen. In the example given in Sayeed, a Walsh code has length 64 ($n=6$), a Hadamard code has length 96 ($n=4$), and a PN sequence has length $2^{15}-1$ ($n=15$). Sayeed '181, paragraphs 25-27. Thus, the Sayeed codes are not associated with each other since " n " is not the same and varies between 4 and 15.

In addition, there is no teaching in the Sayeed '181 reference of increasing the Hadamard code length so that optimum utilization of bandwidth is achieved. Specifically, Sayeed does not compare the Hadamard code length to either the Walsh code length or the length of the PN sequence and is silent as to changing the Hadamard code length based upon the lengths of the other codes. In other words, Sayeed is not concerned with achieving optimum bandwidth utilization. Consequently, since the above-mentioned elements of claim 1 are not taught or suggested by the Sayeed '181 reference, it is believed claim 1 is allowable over the reference.


Claim 5 has recitations similar to claim 1 and it is believed that claim 5 is allowable for the same reasons as described above with respect to claim 1. The remaining claims depend directly or indirectly upon claims 1 and 5. Since claims 1 and 5 are allowable, it is believed the remaining dependent claims are also allowable.

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In view of the foregoing, it is submitted that the application is in condition for allowance which is respectfully requested. The Commissioner is hereby authorized to charge any additional fees which may be required in this application under 37 C.F.R. §§1.16-1.17 during its entire pendency, or credit any overpayment, to Deposit Account No. 50-0383.

Respectfully submitted,

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